

PROJECT ADMINISTRATION DATA SHEET☒ ORIGINAL ☐ REVISION NO. _____Project No. A-3047DATE 9/18/81Project Director: Mr. C. E. Barnett ~~52657~~ Lab EML/RSDSponsor: U. S. Army Missile Command; Redstone Arsenal, AL 35898Type Agreement: Delivery Order No. 0030 under Contract No. DAAH01-81-D-A003Award Period: From 8/28/81 To 9/30/81 (Performance) 11/30/81 (Reports)Sponsor Amount: \$20,000 Contracted through:Cost Sharing: None GTRI/~~GMX~~Title: ATBM Hit-to-Kill AnalysisADMINISTRATIVE DATA OCA Contact Duane Hutchison x4820

1) Sponsor Technical Contact:

Dr. M. M. HallumSystems Simulation and Development DirectorateU. S. Army Missile CommandAttn: DRSMI-RDFRedstone Arsenal, AL 35898205-876-4141

2) Sponsor Admin/Contractual Matters:

Mr. Thomas A. BryantONR Resident RepresentativeGeorgia Institute of Technology206 O'Keefe BuildingAtlanta, GA 30332Defense Priority Rating: DO-A2 under DMS Reg. 1Security Classification: UnclassifiedRESTRICTIONSSee Attached Government Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with Government; except that items costing less than \$1,000 vests with GIT if prior approval to purchase is obtained from the Contracting Officer.COMMENTS:COPIES TO:Administrative Coordinator
Research Property Management
Accounting
Procurement/EES Supply Services
FORM OCA 4-781✓ Research Security Services
Reports Coordinator (OCA)
Legal Services (OCA)
LibraryEES Public Relations (2)
Computer Input
Project File
Other Mr. Barnett - Huntsville

SPONSORED PROJECT TERMINATION SHEETDate 12/30/81

Project Title: Platform Signature Discrimination Technique Investigation

Project No: A-2947

Project Director: Mr. J. L. Archer

Sponsor: U. S. Army Missile Command; Redstone Arsenal, AL

Effective Termination Date: 9/30/81Clearance of Accounting Charges: 11/30/81 (Reporting)

Grant/Contract Closeout Actions Remaining:

- ☒ Final Invoice and Closing Documents
- ☐ Final Fiscal Report
- ☐ Final Report of Inventions
- ☐ Govt. Property Inventory & Related Certificate
- ☐ Classified Material Certificate
- ☐ Other _____

Assigned to: EML/RSD (School/Laboratory)COPIES TO:

Administrative Coordinator
Research Property Management
Accounting
Procurement/EES Supply Services

Research Security Services
Reports Coordinator (OCA) ✓
Legal Services (OCA)
Library

EES Public Relations (2)
Computer Input
Project File
Other _____

Monthly Technical Report No. 001
and
Monthly Cost and Performance Report No. 001

Report Period
1 May through 31 May 1981

PLATFORM SIGNATURE DISCRIMINATION TECHNIQUE INVESTIGATION

J. L. Archer

Contract No. DAAH01-81-D-A003
Delivery Order No. 0018
Project A-2947

Prepared for

U.S. Army Missile Command
Redstone Arsenal, Alabama 35898
Attn: DRSMI-IYE/Morris

Prepared by

Georgia Institute of Technology
Engineering Experiment Station
Atlanta, Georgia 30332

WORK PERFORMED DURING THIS REPORTING PERIOD

The Project A-2947 was initiated during this performance period. The first task involved the investigation of the inherent IFF capability of emerging quiet radar technology. The second task is to examine the effective use of additional information from passive sensors integrated with active radar technologies.

During this reporting period, efforts on both tasks one and two were initiated. Quiet radar technology has been reviewed and its applicability to non-cooperative IFF is currently under study.

PROBLEMS ENCOUNTERED

None

WORK PLANNED

The two tasks described above will continue as planned with emphasis on applicability of quiet radar technology to non-cooperative IFF.

A- 2947

COST INFORMATION

The following charges have been incurred against the contract during the period 1 May 1981 through 31 May 1981.

	<u>Expended</u>	<u>Encumbered</u>
Personal Services (PS)	\$1,743.20	
Materials and Supplies	-0-	
Travel	-0-	
Overhead (at 73% of PS)	1,272.54	
Retirement (at 11.11% of PS)	193.67	
TOTAL	<u>\$3,209.41</u>	

The breakdown of personal services is as follows:

	<u>Dollars</u>	<u>Approximate Manhours</u>
Principal Research Scientists/Engineers	-0-	
Senior Research Scientists/Engineers	\$1,743.20	90.0
Research Scientist II/Engineer II	-0-	
Research Scientist I/Engineer I	-0-	
Technicians/Draftsmen	-0-	
Students	-0-	
Secretarial/Clerical/Other	-0-	
TOTAL	<u>\$1,743.20</u>	<u>90.0</u>

The current financial status of the contract is as follows:

	<u>Budget As Proposed</u>	<u>Expended</u>	<u>Free Balance</u>
Personal Services (PS)	\$28,565.84	\$1,743.20	\$26,822.64
Materials and Supplies	11,870.00	-0-	11,870.00
Travel and Shipping	5,000.00	-0-	5,000.00
Computer	-0-	-0-	-0-
Overhead	21,202.55	1,272.54	19,930.01
Retirement	3,236.59	193.67	3,042.92
Encumbered	-0-	-0-	-0-
FUNDING	<u>\$69,874.98</u>	<u>\$3,209.41</u>	<u>\$66,665.57</u>

Based on present full funding, the funding and equivalent manhours are sufficient to complete the task. Approximately 5 % of the proposed task has been completed.

A-2947

Monthly Technical Report No. 001²
and
Monthly Cost and Performance Report No. 001²

Report Period
1 June through 30 June 1981

PLATFORM SIGNATURE DISCRIMINATION TECHNIQUE INVESTIGATION

J. L. Archer

Contract No. DAAH001-81-D-A003
Delivery Order No. 0018
Project A-2947

Prepared for

U.S. Army Missile Command
Redstone Arsenal, Alabama 35898
Attn: DRSMI-IYE/Morris

Prepared by

Georgia Institute of Technology
Engineering Experiment Station
Atlanta, Georgia 30332

WORKED PERFORMED DURING THIS REPORTING PERIOD

Project A-2947 was continued during this performance period. The first task involving the investigation of inherent IFF capabilities of emerging quiet radar was extended to include special signatures of aircraft such as rotating turbine signatures.

During this reporting period, efforts on both the active and passive tasks were continued. Quiet radar technology and its applicability to non-cooperative IFF is continuing to be under study. Special non-cooperative signatures such as rotating turbine signatures are being reviewed and a list compiled.

PROBLEMS ENCOUNTERED

None

WORK PLANNED

The work on the two tasks will continue with emphases being placed on the development of a taxonomy of applicable signatures for non-cooperative IFF.

COST INFORMATION

The following charges have been incurred against the contract during the period 1 June through 30 June 1981.

	<u>Expended</u>	<u>Encumbered</u>
Personal Services (PS)	\$ 5,540.82	
Materials and Supplies	-0-	
Travel	-0-	
Overhead (at 73% of PS)	4,044.80	
Retirement (at 11.11% of PS)	510.07	
TOTAL	\$10,095.69	

The breakdown of personal services is as follows:

	<u>Dollars</u>	<u>Approximate Manhours</u>
Principal Research Scientists/Engineers	-0-	-0-
Senior Research Scientists/Engineers	\$ 3,906.39	202.5
Research Scientists II/Engineers II	-0-	-0-
Research Scientists I/Engineers I	-0-	-0-
Technicians/Draftsmen	-0-	-0-
Students	949.72	169.9
Secretarial/Clerical/Other	684.71	104.2
TOTAL	\$ 5,540.82	476.76

The current financial status of the contract is as follows:

	<u>Budget As Proposed</u>	<u>Expended</u>	<u>Free Balance</u>
Personal Services	\$28,565.84	\$ 7,284.02	\$21,281.82
Materials and Supplies	11,870.00	-0-	11,870.00
Travel and Shipping	5,000.00	-0-	5,000.00
Computer	-0-	-0-	-0-
Overhead	21,202.55	5,317.34	15,885.21
Retirement	3,236.59	703.74	2,532.85
Encumbered	-0-	-0-	-0-
FUNDING	\$69,874.98	\$13,305.10	\$56,569.88

Based on present full funding, the funding and equivalent manhours are sufficient to complete the task. Approximately 19% of the proposed task has been completed.

Monthly Technical Report No. 002³
and
Monthly Cost and Performance Report No. 002³

Report Period
1 July through 31 July 1981

PLATFORM SIGNATURE DISCRIMINATION TECHNIQUE INVESTIGATION

J. L. Archer

Contract No. DAAH001-81-D-A003
Delivery Order No. 0018
Project A-2947

Prepared for

U.S. Army Missile Command
Redstone Arsenal, Alabama 35898
Attn: DRSMI-IYE/Morris

Prepared by

Georgia Institute of Technology
Engineering Experiment Station
Atlanta, Georgia 30332

WORKED PERFORMED DURING THIS REPORTING PERIOD

The investigation of inherent IFF capabilities of the emerging "quiet" radar technology is being continued with emphasis towards special signatures of aircraft to include rotating turbine signatures. An extensive research of existing IFF technology is being made through the use of the Redstone Scientific Information Center and a bibliography is being prepared.

PROBLEMS ENCOUNTERED

None

WORK PLANNED

The emphasis shall shift to long wave and short wave IR technology applicable to IFF. A trip is being planned to Eglin Air Force Base to discuss the Air Force's technology.

A-2947 COST INFORMATION

The following charges have been incurred against the contract during the period 1 July through 31 July 1981.

	<u>Expended</u>	<u>Encumbered</u>
Personal Services (PS)	\$19,705.08	
Materials and Supplies	7.10	\$11,504.55
Travel	-0-	
Overhead (at 75% of PS)	14,755.50	
Retirement (at 11.11% of PS)	1,722.09	
TOTAL	<u>\$36,189.77</u>	<u>\$11,504.55</u>

The breakdown of personal services is as follows:

	<u>Dollars</u>	<u>Approximate Manhours</u>
Principal Research Scientists/Engineers		
Senior Research Scientists/Engineers	\$ 6,730.17	315
Research Scientists II/Engineers II	5,745.00	338
Research Scientists I/Engineers I	2,166.75	157
Technicians/Draftsmen	-0-	-0-
Students	4,204.76	682
Secretarial/Clerical/Other	858.40	116
TOTAL	<u>\$19,705.08</u>	<u>1608</u>

The current financial status of the contract is as follows:

	<u>Budget As Proposed</u>	<u>Expended</u>	<u>Encumbered</u>	<u>Free Balance</u>
Personal Services	\$34,310.16	\$26,989.10		\$ 7,321.06
Materials and Supplies	11,870.00	7.10	11,504.55	358.35
Travel and Shipping	5,000.00	-0-		5,000.00
Retirement	3,236.59	2,425.83		810.76
Overhead	25,458.23	20,072.84		5,385.39
FUNDING	<u>\$79,874.98</u>	<u>\$49,494.87</u>	<u>\$11,504.55</u>	<u>\$18,875.56</u>

Based on present full funding, the funding and equivalent manhours are sufficient to complete the task. Approximately 76% of the proposed task has been completed.

1 147

Monthly Technical Report No. 004
and
Monthly Cost and Performance Report No. 004

Report Period
1 August through 31 August 1981

PLATFORM SIGNATURE DISCRIMINATION TECHNIQUE INVESTIGATION

J. L. Archer

Contract No. DAAH001-81-D-A003
Delivery Order No. 0018
Project A-2947

Prepared for

U.S. Army Missile Command
Redstone Arsenal, Alabama 35898
Attn: DRSMI-IYE/Morris

Prepared by

Georgia Institute of Technology
Engineering Experiment Station
Atlanta, Georgia 30332

WORKED PERFORMED DURING THIS REPORTING PERIOD

The investigation of the applicability of new technologies to non-cooperative IFF continued during this reporting period with both passive and active sensors. The use of the quiet radar technology has been assessed as far as possible with the conclusion that its utility in non-cooperative IFF applications should be postponed until field tests are completed next year. The use of JEM signatures have emerged as an attractive IFF technique and need to be pursued further.

A trip to Eglin Air Force Base was made during the month of August as planned and two active CO₂ LADAR systems were identified as promising solutions to the IFF problem. These concepts are being documented and will be presented in the final report.

Work on long and short wave IR technology is being pursued and will be brought to a conclusion.

PROBLEMS ENCOUNTERED

None

WORK PLANNED

Work will continue during the next performance period with a continued emphasis on passive IR and electro-optical technologies and use of additional radiometry and passive millimeter wave will also be assessed.

A-2947 COST INFORMATION

The following charges have been incurred against the contract during the period 1 August through 31 August 1981.

	<u>Expended</u>	<u>Encumbered</u>
Personal Services (PS)	\$ 6,866.48	
Materials and Supplies	7.10	
Travel	94.15	100.00
Overhead (at 75% of PS)	5,149.86	
Retirement (at 11.11% of PS)	608.57	
TOTAL	<u>\$ 7,576.30</u>	<u>\$ 100.00</u>

The breakdown of personal services is as follows:

	<u>Dollars</u>	<u>Approximate Manhours</u>
Principal Research Scientists/Engineers	-0-	-0-
Senior Research Scientists/Engineers	\$ 2,640.00	136.8
Research Scientists II/Engineers II		
Research Scientists I/Engineers I	2,079.36	169.2
Technicians/Draftsmen	-0-	-0-
Students	1,388.93	248.5
Secretarial/Clerical/Other	758.19	115.4
TOTAL	<u>\$ 6,866.48</u>	<u>669.9</u>

The current financial status of the contract is as follows:

	<u>Budget As Proposed</u>	<u>Expended</u>	<u>Encumbered</u>	<u>Free Balance</u>
Personal Services	\$34,310.16	\$33,855.58	-0-	\$ 454.58
Materials and Supplies	11,870.00	14.20	-0-	11,855.80
Travel and Shipping	5,000.00	94.15	100.00	4,805.15
Equipment	-0-	11,504.55	-0-	(11,504.55)
Retirement	3,236.59	3,034.40	-0-	202.19
Overhead	25,458.23	25,222.70	-0-	235.53
FUNDING	<u>\$79,874.98</u>	<u>\$73,725.58</u>	<u>\$ 100.00</u>	<u>\$ 6,049.40</u>

Based on present full funding, the funding and equivalent manhours are sufficient to complete the task. Approximately 92% of the proposed task has been completed.